UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/493,013	01/28/2000	Toshimitsu Kaneko	0039-7544-2TTCRD	1659

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EXAMINER
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ART UNIT	PAPER NUMBER
2621	*AH*

DATE MAILED: 07/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

    4a) Of the above claim(s) *1-8 and 15-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-14 and 21-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1.   Claims 1-8 and 15-20 are withdrawn from further consideration pursuant to 37 CFR

1.142(b), as being drawn to a nonelected groups I and III, there being no allowable generic or

linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 6.

Response to Arguments

2.   Applicant's arguments with respect to claim 9 on page 11, line 16 to page 12, line 12 of

the Remarks (now Paper No. 13) have been considered but are moot in view of the new

ground(s) of rejection in view of Bergman et al.

The Applicant alleges that the Examiner used Hindsight to combine Palmer, Itokawa, and

Hennessey et al on page 12, lines 13-20 of the Remarks (now Paper No. 13). The Examiner

respectfully disagrees. In response to applicant's argument that the examiner's conclusion of

obviousness is based upon improper hindsight reasoning, it must be recognized that any

judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight

reasoning. But so long as it takes into account only knowledge which was within the level of

ordinary skill at the time the claimed invention was made, and does not include knowledge

gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re*

McLaughlin, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Specifically, Itokawa explicitly

explains that saving both the foreground and background feature data improves the tracking

(motion) of the object through video in column 7, lines 35-43 and the color histogram of

Bergman et al fully characterizes the color distribution of a multimedia object further improving

the tracking.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claims 9-14, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Palmer (U.S. Patent No. 5,684,715) in view of Itokawa (U.S. Patent No. 6,404,901), and further

in view of Bergman et al (U.S. Patent No. 6,564,263).

Referring to claim 9,

i.   Extracting feature data of a predetermined object and feature data of a background

area from a frame of an input video is not explicitly explained by Palmer. Palmer does

explain extracting feature data of a predetermined object in column 6, lines 8-29. The

attribute generator is responsible for determining characteristics of an object such as

position, shape, size, and layering information for each video object. However, Palmer

does not explicitly explain extracting feature data of the background area from a frame.

Itokawa illustrates extracting both the foreground area and the background area from an

image input in figure 8, reference numbers 102 and 104. The extraction of feature data

from the background is explained by Itokawa in column 9, lines 42-50. Itokawa explains

that saving both the foreground and background feature data improves the tracking

(motion) of the object through video in column 7, lines 35-43. Furthermore, in order to

save spatial and temporal information about an entire frame, it would be necessary to

extract both the object and the background information from a frame. Therefore, it would

have been obvious to one of ordinary skill in the art at the time the invention was made to extract feature data of a predetermined object and feature data of the background area from a frame, as suggested by Itokawa, in the object descriptor of Palmer because the object would be completely characterized and tracked more accurately.

ii.   Describing the feature data of the predetermined object and the feature data of the background area as a descriptor of the frame, the feature data of the predetermined object including a color histogram of an area of the predetermined object, the color histogram representing each color element is not explicitly explained by Palmer or Itokawa. Palmer does illustrate describing the feature data of a predetermined object as a video descriptor in figure 3. Furthermore, Itokawa explains determining the feature data of a background area of a frame corresponding to part i of this claim. However, the system of Palmer and Itokawa does not include a color histogram as feature data of a predetermined object. Bergman et al explain feature descriptors including color histograms in column 8, lines 42-46 to describe multimedia objects (explained in the abstract). Bergman et al explain the possible histogram types and transformations in column 12, line 67 to column 14, line 2. By fully characterizing the color distribution of a multimedia object and storing the characterization (i.e. histogram) in the object descriptor of Palmer and Itokawa, an object will be tracked more accurately throughout a series of frames. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to describe the feature data of the predetermined object and the background, including a color histogram representing each color element of a predetermined object of the frame, as suggested by Bergman et al, in the descriptor of Palmer and Itokawa because the

complete feature data about an entire frame of video is recorded and object tracking is performed more accurately.

iii.   Attaching the descriptor to the frame is illustrated by Palmer in figure 3, as the video object descriptor 60 corresponds to object 64 of frame 51.

Referring to claim 10, describing a difference between the feature data of the predetermined object and the feature data of the background area as the descriptor is not explicitly explained by Palmer. However, Itokawa explains in column 9, lines 6-30 that the background data and the foreground data are separated, thereby describing the difference between the feature data and the background data. Itokawa further illustrates in figure 26, illustrates the difference between the background motion vectors (601) and the object motion vectors. In order to separate a predetermined object from the background area of a frame, it would be necessary to determine a difference between a feature of the object and the background. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to describe a difference between the feature data of a predetermined object and the feature data of the background area.

Referring to claim 11,

i.   The feature data of the predetermined object including at least position, outward form or size, and moving information of the object is explained by Palmer in column 4, lines 51-59 and column 5, lines 7-11. The descriptor is explained to include spatial information including the position and size of each object and the temporal information includes action information that specifies movement of the object.

ii.   The feature data of the background area including at least the moving information of the background area is not explicitly explained by Palmer. However, Itokawa explain that a background area may be moving and that the background movement maybe be calculated as the motion value vector, Vb in column 9, lines 21-30 and illustrated in figure 11. In order to save information of an entire frame when the background is moving, as suggested by Itokawa, it would be necessary to extract both the moving information of the object and the moving information of the background. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the moving information of the background in the feature data of the background.

Referring to claim 12, the descriptor including:

i.   A frame number is illustrated by Palmer in figure 4, as each frame has its own corresponding frame ID.

ii.   A pointer to a next descriptor is explained by Palmer in column 5, lines 7-11. The action information in the descriptors will allow the computer to jump from one frame sequence to another frame sequence, which also would contain a descriptor.

iii.   The feature data of the background area corresponds to claim 11.

iv.   The feature data of each object in the frame is explained by Palmer in column 5, lines 12-26. Palmer explains that there will be a separate video descriptor for each of the objects in the frames.

Referring to claim 13, the descriptor being created from a corresponding frame at an interval of a predetermined number of frames in the input video is explained by Palmer in column 6, lines 23-29 and illustrated in figure 4. The interval of frames in the input video is one.

Referring to claim 14, this claim includes all the limitations of claim 14, but is performed on a computer readable medium. Palmer illustrates a computer readable medium capable of performing the method of claim 9 in figure 2 as Disk (15).

Referring to claims 21 and 23, the feature data of the predetermined object including average and direction of a moving vector is not explicitly explained by Palmer. However, Itokawa illustrates a moving vector of an object and a background (shaded pixels), including average and direction, in figure 18. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include average and direction of a moving vector, as suggested by Itokawa, in the feature data of the predetermined object in the system of Palmer because the motion of the object between frames will be defined, thereby improving the tracking of the object in video.

Referring to claims 22 and 24, the feature data of the background including at least one of color histogram and camera-work information describing an operation of a camera used for the input video is not explicitly explained by Palmer or Itokawa. However, Bergman et al explain feature descriptors including color histograms in column 8, lines 42-46 to describe multimedia objects (explained in the abstract). By fully characterizing the color distribution of a multimedia object and its background and storing the characterization (i.e. histogram) in the object descriptor of Palmer and Itokawa, an object will be tracked more accurately throughout a series of frames. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention

was made to describe the feature data of the background including a color histogram, as

suggested by Bergman et al, in the descriptor of Palmer and Itokawa because the complete

feature data about an entire frame of video is recorded and object tracking is performed more

accurately.

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Vaithilingam et al (U.S. Patent No. 6,411,724) – To exhibit using descriptors to

represent multimedia objects including color histograms as explained in column 10, lines

19-26.

6.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this
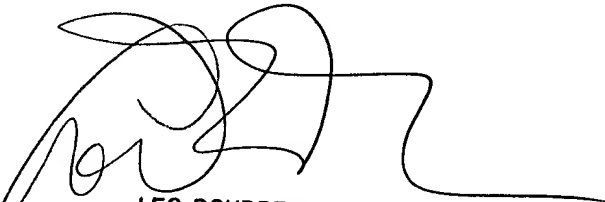
final action.

7.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Hussein Akhavannik whose telephone number is (703)306-4049.
The examiner can normally be reached on M-F 8:30-5:00.

       If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Leo H. Boudreau can be reached on (703)305-4706. The fax phone number for the
organization where this application or proceeding is assigned is 703-872-9306.

       Information regarding the status of an application may be obtained from the Patent
Application Information Retrieval (PAIR) system. Status information for published applications
may be obtained from either Private PAIR or Public PAIR. Status information for unpublished
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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hussein Akhavannik \\.\.
June 18, 2004

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